LINEAR MINIMUM MEAN SQUARE ERROR EQUALIZATION WITH INTERFERENCE CANCELLATION FOR MOBILE COMMUNICATION FORWARD LINKS UTILIZING ORTHOGONAL CODES COVERED BY LONG PSEUDORANDOM SPREADING CODES

Abstract of the Disclosure

The present invention provides linear MMSE equalization with parallel interference cancellation for symbol determination in a forward link of a CDMA communication system which has a plurality of code channels in use. Use of the linear MMSE equalization with parallel interference cancellation of the present invention provides significantly increased performance. The preferred method linearly filters a received signal to form a first filtered signal (410), despreads and demodulates the first filtered signal (415, 420) and provides a plurality of symbol estimates for all corresponding code channels (430). An estimated transmitted signal is generated from the plurality of symbol estimates (435), and with a channel estimate (405), an estimated received signal is generated (440). A residual signal is determined as a difference between the received signal and the estimated received signal, is linearly filtered (445), and then combined with the estimated transmitted signal to form a next, enhanced estimated transmitted signal (450). This next estimated transmitted signal is despread (455, 460) and utilized to provide a next plurality of symbol estimates, for a selected code channel of the plurality of channels, for subsequent use in error correction and decoding, and further use by a subscriber (465, 475).